

New Genera and Species, &c., of Neuropterous Insects; and a revision of Mr. F. Walker's British Museum Catalogue of *Neuroptera*, part ii. (1853), as far as the end of the genus *Myrmeleon*. By ROBERT M'LACHLAN, F.L.S.

[Read March 21, 1867.]

(With one Plate.)

I OFFER this paper as a contribution to a knowledge of the much-neglected Order *Neuroptera*. The insects noticed herein all pertain to that Order in its most perfect sense, all being *Planipennia*, to which division it is probable the term *Neuroptera* should be alone applied. The number of students of these insects being so very limited, and the collected material as yet so small, render any attempt to work out the analogies, in a manner approaching the minuteness effected in the *Coleoptera* and higher forms of *Hymenoptera*, absolutely impossible; and the generic outline recently published by Hagen in his 'Hemerobidarum Synopsis Synonymica,' while of the utmost value as a foundation, shows how little is yet known, and how great are the difficulties of the subject. I have here not attempted any important redistribution or division of existing genera, and the few described as new are for the most part based on newly discovered forms. Nor is this paper at all exhaustive, so far as the materials in my own and other collections are concerned. Many interesting species exist in the collection of the British Museum which time and opportunity have not enabled me to notice, and I believe the Oxford Museum contains as many or more undescribed novelties.

I look upon the revision of Mr. Walker's Catalogue as by far the most important part of the paper. I will not express any opinion on the correctness of the descriptions in the Catalogue, on the principle that a critic is always too ready to find fault with his fellow-workers, and at the same time may be blind to his own shortcomings. Suffice it to say that the chief defect appears not to be inaccuracy of specific description, but a disregard in some instances of the sectional characters, whereby those workers who cannot obtain access to the types are liable to be misled; that specific distinctions are frequently founded on unimportant variations is also to be regretted, but is less serious. Against these objections is to be placed the weighty fact that at the time when the Catalogue was written, now fourteen years since, the subject was in an all but chaotic condition. The examination of the types

of several hundred species has been a work of much labour; and I can scarcely hope that I have escaped errors of commission as well as of omission. I commenced with the intention of revising the whole of part ii. of the Catalogue, but decided upon stopping at the end of the genus *Myrmeleon*. I hope hereafter to write concerning the *Ascalaphidæ*, and reserve that part of the list for the acquirement of fuller information; the *Panorpidæ* were relinquished on account of the difficulties found in separating the North American forms. The evils arising from the retention of large numbers of specific forms under one generic head are exhibited in the *Neuroptera* in an intensified degree. The *Myrmeleonidæ*, for instance, stand greatly in need of more minute division; and the rich genus *Chrysopa* is made of several more or less well-marked groups,—a wide field for the researches of a monographer.

I have before said that an exhaustive work is not here attempted; and if my notes shall smooth the path for future students, their purpose will have been served.

## SIALIDÆ.

### Genus CHAULIODES, Latreille.

CHAULIODES PUSILLUS, n. sp. Lurido-brunneus. (Antennæ mutilatæ).

Caput subtriangulare, lurido-brunneum; ocellis flavis; oculis nigris; labro magno, antice rotundato. Prothorax duplo longior quam lator, capite angustior, lateribus fere parallelis. Alæ fere æquales, obtusæ, breves, pallide griseo-brunneæ, immaculatæ; venis venulisque brunneis. Pedes brunnei. Abdomen saturate fuscum; appendicibus flavis, superioribus fortiter deorsum incurvatis, parallelis, inferioribus parvis, subdilatatis (♂). Long. corp.  $6\frac{1}{2}$ ''; exp. alar. 1'' 6'''.

Hab. in India orientali?? In collect. auct.

*Antennæ* (broken) with the two basal joints brownish testaceous. Head elongate subtriangular; the crown with a median longitudinal impressed line; lurid brown, with some yellowish impressed spaces on the sides posteriorly; labrum large, broader than the clypeus, strongly rounded in front. *Eyes* black. *Ocelli* yellow. *Prothorax* much narrower than the head, twice as long as broad, the sides almost parallel; lurid brown. *Meso-* and *metathorax* lurid brown. *Wings* nearly equal, the posterior only slightly smaller than the anterior; broad, obtuse; pale greyish brown; unspotted, or with an appearance of three small darker spots between the first and second sector; veins and veinlets dark brown; the anterior wings with about seventeen transverse veins in the costal area, which become closer and oblique towards the apex; transverse discal veins very few. *Legs* lurid brown, the tarsi more obscure. *Abdomen* dark fuscous, almost black beneath;

appendices yellow; the superior curved strongly under and parallel; the inferior short, somewhat dilated, appearing to arise from the bases of the superior, and directed outwards.

I possess one male of this small species, but with no record of locality. It is possibly Indian.

*CHAULIODES JAPONICUS*, n.sp. Fuscus. (Antennæ mutilatæ). Caput pallide flavidum, supra infra et utrinque medio nigrum; mandibulæ piceo-fuscæ. Prothorax capite vix angustior, paullo longior quam lator, fere parallelus, supra convexus, postice medio linea impressus; fuscus, infra flavidus. Alæ elongatæ, latæ, pallide cinereo-hyalinæ, apicibus vix acuminatis: anticæ inconspicue fusco nebulosæ; pterostigmate elongato, fusco; venulis costalibus venisque longitudinalibus fusco-nigris; venulis transversalibus discalibus paucis, pallidis: posticæ anticis vix pallidiores. Pedes pallide fusci, subtus flavi; genibus, tibiæ apicibus tarsisque saturate fuscis. Abdomen fusconigrum (♀). Long. corp. 1" 4''' ; exp. alar. 4" 2'''.

*Hab.* in Japonia. In collect. auct.

Brown. (Antennæ broken in my example). *Head* pale yellowish, shining, the middle above occupied by a quadrate blackish space, which is interrupted by a yellowish line margining a median longitudinal impressed line, the sides narrowly black; beneath, the middle is shining blackish; the space before the mandibles, and these latter, pitchy fuscous; *ocelli* yellow; *eyes* dark shining fuscous. *Prothorax* brown above, yellow beneath; narrower than the head, rather longer than broad, the sides nearly parallel, the anterior margin rounded; upper surface very convex posteriorly, with a lanceolate median impressed space, and with irregular impressed spaces at the sides. *Meso- and metathorax* pale fuscous. *Wings* long, broad, the apices somewhat narrowed, and the apical margin slightly excised; cinereo-subhyaline: *anterior wings* with indistinct fuscous clouds, pterostigmatal region fuscous; costal veinlets numerous, blackish fuscous; longitudinal veins blackish fuscous; the discal and apical transverse veinlets very few and fine, pale: *posterior wings* slightly paler, less clouded, excepting at the apex; veins and veinlets coloured as in the anterior. *Legs* pale fuscous above, yellow beneath; the knees, the apical portion of the tibiæ, and the tarsi wholly dark fuscous. *Abdomen* blackish.

There is another Japanese species, *C. grandis* (*Hemerobius grandis*), Thunberg, which, as far as I am aware, is known only from Thunberg's description and coarse figure; it is very different from *C. japonicus*.

#### Genus *CORYDALIS*, Latreille.

*CORYDALIS BATESII*, n. sp. (Plate VIII. fig. 1). Brunnea. Antennæ graciles, simplices, flavæ nigro terminatæ. Caput supra et infra intense

piceo-brunneum, dense et minute punctatum; mandibularum apicibus palpisque nigris. Prothorax longior quam lator, supra convexus, fere parallelus, postice ter impressus, luride brunneus. Mesothorax metathoraxque prothoracem latitudine subæquantes. Alæ elongatæ: anticæ cinereæ, pone medium fuliginosæ; nebulis magnis plurimis apud radium, in spatio subcostali margineque costali fusco-nigris; punctis in cellulis albis; venulis costalibus plerumque, transversalibus omnino nigris, nonnullis basin versus crassis; venis longitudinalibus plerumque testaceis: posticæ anticis paullo latiores; venulis transversalibus nigris. Pedes fusci; tarsi tibiarumque apicibus (præcipue posteriorum) flavidis (♀). Long. corp. 2" 3"; exp. alar. 5" 2".

*Hab.* Ega, Brazil. In collect. auct.

Brown. *Antennæ* very slender, not toothed, not more than two-thirds the length of the body, yellow, the tips black. *Head* above and beneath dark pitchy brown, finely and closely punctured, the tooth at the lower angles, acute; margined with yellow at the insertions of the mandibles; *ocelli* yellow; *eyes* dark olivaceous; *mandibles* (♀) scarcely so long as the head, black at the tips, with three closely placed teeth beneath the apex internally; *palpi* black. *Prothorax* longer than broad, scarcely dilated posteriorly, the sides nearly parallel, very convex above, smooth, dull brown, with three short impressed spaces behind. *Meso-* and *metathorax* small, scarcely broader than the prothorax, each broader than long, pale brown. *Wings* very long, somewhat acute, narrow: *anterior wings* cinereous, a large space beyond the middle clouded with pale smoky fuscous; numerous large blackish blotches in the anterior portion, one at the pterostigmatal region, several in the subcostal area, and others under the radius; small white dots in the cellules; costal veinlets all simple except about two, very strong, each veinlet mostly black at each end and testaceous in the middle, but all black beyond the middle of the costa; transverse and gradate veinlets of the disk black, some of those towards the base much incrassated; longitudinal veins, excepting where they traverse the dark blotches, testaceous: *posterior wings* slightly broader than the anterior, paler; some smoky clouds on the anterior margin; costal and all transverse veinlets black. *Legs* fuscous, paler beneath; all the tarsi and the apical portion of the tibiæ (especially the posterior) yellowish ochreous; finely pilose. *Abdomen* fuscous (the colours probably altered).

For this magnificent insect I am indebted to my friend Mr. H. W. Bates. It was the only *Corydalis* he saw during eleven years' residence on the Amazons.

CORYDALIS CRASSICORNIS, n. sp. (Plate VIII. fig. 2). Pallide brunnea.

*Antennæ* testaceo-fuscæ, nigro terminatæ, corpori fere æquales, valde robustæ; articulo basali fortiter inflato; articulis reliquis (basin versus exceptis) subtus singulatim dente recto brevi instructis. Caput latis-

simum, rugulosum, testaceo-fuscum, circum ocellos marginemque anteriorem nigrum; mandibulis valde elongatis, concoloribus, præter apices obscuriores; palpis nigris; ocellis flavis. Prothorax brevis, fere quadratus, supra planiusculus; testaceo-fuscus, flavo maculatus, postice impressus, rugosus. Mesothorax metathoraxque prothorace vix angustiores, castaneo-fusci. Alæ cinereo-hyalinæ: anticæ punctis plurimis albis; areacostali pallidiore, apicem versus infuscata; area subcostali fere omnino infuscata; venulis costalibus albidis, nigro terminatis, apicem versus omnino nigris; venulis transversalibus nigris; venis longitudinalibus testaceis: posticæ vix pallidiores; venulis costalibus nonnullisque transversalibus nigris, reliquis testaceis. Pedes flavido-brunnei, tarsi genibusque intense fuscis. Abdomen flavidum; appendicibus elongatis pilosiusculus; superioribus apicibus approximatis, dilatatis, abrupte deorsum inflectis; inferioribus dimidio et ultra brevioribus, cylindricis, sursum incurvatis (♂). Long. corp. sine mandib. et append. 1" 10"; long. mandib. 1" 8"; exp. alar. 5" 4".

*Hab.* Texas. In collect. auct.

Pale brownish testaceous. *Antennæ* as long as, or longer than, the body, very thick, brown, the sutures of the joints, and the 3 or 4 terminal joints, black; basal joints very greatly inflated, bulbous; each of the other joints, excepting those in the basal fourth, furnished beneath with a short straight triangular tooth; towards the base a commencement of this structure is seen in the presence of a tubercle only. *Head* very broad, the tooth at the posterior angles acute; above flattened, finely rugose, posteriorly with three impressed coarsely reticulated spaces; deep cavities in front before the base of each antenna; colour pale brownish testaceous, blackish round the ocelli, and narrowly margined with blackish in front; palpi black; ocelli yellow; eyes brown; mandibles very long, almost equalling the body, sulcated at the base above, rugose, the roughness occasioned by numerous closely placed transverse series of minute tubercles, the inner edge with small blackish tubercles, colour the same as the head, but darker at the tips. *Prothorax* nearly quadrate, scarcely longer than broad, hardly perceptibly dilated behind; brownish-testaceous, the anterior margin narrowly blackish; surface uneven, a lanceolate median longitudinal impression behind, and several raised spaces on each side, which are rather paler than the ground-colour. *Meso- and metathorax* nearly equal, slightly narrower than the hinder edge of the prothorax, brown. *Wings* elongate, cinereo-hyaline: *anterior wings* with numerous small white dots in the cellules; the pterostigmatal region dark fuscous; the subcostal area dark fuscous, with paler spaces; the first 3 or 4 costal veinlets and those towards the apex altogether blackish, the rest yellowish white, black at each end; all the transverse discal veinlets black; longitudinal veins testaceous: *posterior wings* scarcely paler than the anterior; the subcostal area infuscated; costal veinlets, and some of the discal, black. *Legs* pale brown, the tarsi, knees,

and apical half of tibiæ dark fuscous. *Abdomen* yellowish; appendices very long, slightly pilose; superior nearly cylindrical, dilated at the base, the tips approximating, dilated and truncated, but suddenly bent downwards and produced into a short process; inferior not half so long as the superior, cylindrical, curved upwards at the tips.

*CORYDALIS INAMABILIS*, n. sp. (Plate VIII. fig. 3). Brunnea. Antennæ corpore paulo breviores, modice incrassatæ, pallide fuscæ, nigro terminatæ; articulo basali inflato; reliquis, basalibus exceptis, singulatim subtus dente recto acuto instructis. Caput luteo-fuscum, antice pallidius, rugulosum; ocelli flavi; oculi plumbei; palpi nigri flavo annulati; mandibulæ valde elongatæ, intense fuscæ, basi pallidiores. Prothorax longior quam lator, supra convexus, postice leviter lator; brunneus. Mesothorax metathoraxque prothorace latiores. Alæ elongatæ, angustæ, cinereo-hyalinæ: anticæ punctis numerosis albis; area subcostali fusco-nebulosa; venulis costalibus nigris, basin versus pallido interruptis; venulis transversalibus nigris; venis longitudinalibus flavidis: posticæ concolores; venulis costalibus nonnullisque discalibus nigris. Pedes pallide brunnei, tarsis tibiarum apicibusque obscurioribus. Abdomen fuscum; appendicibus elongatis; superioribus biarticulatis, articulo ultimo sinuato, apice deorsum incurvato; inferioribus brevioribus, geniculatis, apicibus subelavatis (♂). Long. corp. sine mandib. et append. 1" 4"; long. mandib. 1"; exp. alar. 4".

*Hab.* Texas. In collect. auct.

Pale brown. *Antennæ* scarcely shorter than the body, moderately thick, pale brown, the three or four terminal joints black; basal joint stout and bulbous; the succeeding joints, excepting those in the basal fourth, each provided near its extremity beneath with a short straight triangular acute tooth. *Head* yellowish brown, the anterior margin narrowly black; finely roughened above and beneath, and posteriorly with coarsely reticulated spaces; *ocelli* yellow; *eyes* plumbeous; *palpi* black, with broad whitish yellow annulations. *Mandibles* very long, slender, finely rugose, pale brown, the apical portion dark. *Prothorax* longer than broad, sensibly widened posteriorly; the upper surface convex, with a lanceolate median longitudinal impression behind, and roughened raised spaces along the sides, colour pale brown. *Meso-* and *metathorax* slightly broader than the prothorax, nearly equal. *Wings* long and narrow, subacute, cinereo-subhyaline: *anterior wings* with numerous small white dots everywhere in the cellules, excepting in the costal area; subcostal area with fuscous spaces; pterostigmatal region slightly yellowish; costal veinlets black, those near the middle whitish in the centre; all the discal and apical transverse veinlets black; the longitudinal veins yellow, the subcostal and radius interrupted with fuscous: *posterior wings* scarcely paler than the anterior; costal veinlets and most of the discal and apical transverse veinlets black; the longitudinal veins,

and the discal transverse veinlets towards the base, yellow. *Legs* pale yellowish brown, the tarsi and tips of the tibiæ more obscure. *Abdomen* pale fuscous; appendices long, yellowish, slightly pilose; superior appendices sinuated, bisarticulate, the tips bent under; inferior appendices geniculated, the apices directed upwards and slightly dilated.

This species is closely allied to *C. crassicornis*, and has the same antennal structure; it differs in its apparently smaller size, *annulated palpi*, and a slightly different formation of the appendices.

In the genus *Corydalis* the character of *size*, when taken from a single individual of a species, is not of much importance, as these insects vary greatly in this respect, not only sexually, but also in different examples of the same sex.

### MYRMELEONIDÆ.

#### Genus PALPARES, *Rambur.*

**PALPARES FALCATUS**, n. sp. Rufo-fulvus. Antennæ rufescentes. Caput rufo-fulvum; occipite postice maculis tribus, antice vitta transversa quadrimaculata, maculis nigris. Palpi nitentes, piceo-brunnei. Thorax vitta media, et utrinque, fuscus. Alæ latæ, albido-hyalinæ: anticæ ad apicem obtusæ, dente parvo instructæ, puncto ad marginem dorsalem prope basin nigro-fusco; maculis costalibus numerosis, obliquis, alteris ad apicem, duabus magnis plus minusve confluentibus basin versus, fasciis duabus transversis, obliquis, quarum una angusta, ante medium, altera lata pone medium, nebulaque magna apicali, fuscis: posticæ apicibus sursum productis, valde falcatis, margine sinuato; maculis nonnullis costalibus et ante apicem fascisque tribus latis, quarum una media fere interrupta ad marginem dorsalem apicem versus producta, altera completa pone medium, tertia ad apicem, fuscis: venis venulisque rufescentibus. Pedes rufo-fusci, albido-pilosi, nigro spinosi. Abdomen fuscum, vix rufescens; ♂ appendicibus brevibus, curvatis, fere clavatis, intus spinis brevibus nigris dense instructis. Long. corp. 2"; exp. alar. 5" 3".

*Hab.* Birmah. In collect. Mus. Brit. (♂) et auct. (♀).

*Antennæ* reddish. *Head* pale reddish-fulvous, darker about the basal joints of the antennæ; front yellowish; occiput in front with a transverse vitta composed of four black spots, the two middle ones somewhat united, behind or above with three black spots placed in a triangle, and a short line on each side of the upper ones. *Thorax* reddish fulvous, a median narrow fuscous stripe, and the sides broadly fuscous; prothorax narrowly transverse, and, with the mesothorax, clothed with reddish hairs; metathorax clothed more thickly with whitish hairs; the breast reddish brown. *Wings* much dilated beyond the middle, hyaline: *anterior wings* obtuse at the end, but the ex-

treme apex produced into a sort of tooth; the apical margin and apical half of dorsal sinuated; on the dorsal margin near the base is a small black shining spot; costal margin with numerous oblique fuscous spots, a collection of fuscous spots on the costa beyond the pterostigma; a fuscous line at the postcostal furcation; two large, more or less confluent, fuscous spots in the upper part of the disk towards the base; a narrow oblique fuscous fascia before the middle, broadest at its commencement below the radius, and becoming gradually narrower until its junction with the dorsal margin; a broad oblique fascia beyond the middle, becoming paler and cloudy on the dorsal margin, so that it appears as a very large blotch extending from below the apex two-thirds across the wing, after which it is indistinct; a pale fuscous cloudy space before the apex, below the collection of subapical costal spots; the tooth-like apical production fuscous; besides these markings some of the principal veins are dotted with fuscous, and smaller dots in the pterostigmatal region: *posterior wings* slightly shorter and narrower than the anterior; the apex produced upwards and ending in a strongly curved hook, the margins sinuated as in the anterior; the oblique costal spots are less numerous and do not extend beyond the middle of the costa; a collection of spots at the commencement of the elevated apex, beyond the pterostigma; a mark at the postcostal furcation; three broad transverse fasciæ, one about the middle commencing below the radius, and almost interrupted in the middle, produced towards the apex on the dorsal margin; the second beyond the middle, commencing on the costal margin, the edges sinuated; the third occupying the apex, dilated in the middle, so that it is almost triangular in form: in all the wings the pterostigmatal region is somewhat opaque, and dirty whitish; all the veins and veinlets reddish, becoming darker where they traverse the fuscous markings. *Legs* dark pitchy brown or reddish brown, short and stout, rather thickly clothed with short whitish hairs and strong blackish spines. *Abdomen* reddish brown, darker at the base, which portion is clothed with fine whitish pubescence; ♂, appendices short, not half the length of the penultimate segment, curved, the apices thickened, hairy, the inner side thickly set with short black spines.

This insect is most allied to *P. contrarius*, Walker, but very distinct, especially through the strongly falcate posterior wings. With that species, and with *P. gigas*, Dalman, and *P. maestus*, Hagen, it forms a peculiar group which no doubt will eventually be generically separated, and to which the term *Symmalthetes* may be applied. The male above described is the only one known in the four species.

PALPARES FULVUS, n. sp. Rufo-brunneus. Antennæ nigræ; clava acuminata. Caput rufo-griseum; vertice valde fornicato, vitta media nigra; fronte flava; palpis nigris, gracilibus, labialibus perelongatis.



Thorax supra rufo-fulvus, sparse nigro pilosus, vitta media nigra (metathorax albido pilosus); infra (et supra utrinque) intense niger. Alæ latæ, apicibus acutiusculis: anticæ fulvæ, subhyalinæ, margine apicali late brunneo; punctis costalibus dorsalibusque (ad basin), nonnullisque discalibus pone medium, nigris; maculis duabus magnis basin versus, fascia interrupta ante medium, macula costali permagna pone medium, fasciaque apicali nigris; venis venulisque testaceis, in maculis nigris: posticæ albæ, maculis duabus oppositis basalibus, macula costali ante apicem fasciisque duabus, latissimis, quarum una ante medium, altera pone medium cum prima vix confluyente, circum marginem apicalem extensa, nigris. Pedes intense nigri. Abdomen rufo-brunneum. ♀. Long. corp. 2" 4''; exp. alar. 5" 8''.

*Hab.* in Africa australi?. In collect. auct.

*Antennæ* nearly as long as the thorax, the club attenuated, black. *Head* greyish; the vertex strongly inflated, with a deep longitudinal impressed line, a black median vitta expanding in front in form of an Y, and with a small black dot on each side; face yellow, somewhat reddish round the eyes; *palpi* black, the labial very long and slender, the terminal joint abruptly clavate and somewhat piceous at the extreme apex. *Eyes* dark grey, with darker streaks. *Thorax* reddish fulvous, above with a median black vitta, the sides and the under surface intensely black; *prothorax* rather broader than long, dilated posteriorly, clothed sparingly with black hairs; *metathorax* clothed sparingly above and densely at the sides beneath with long white pubescence. *Wings* broad, acute at the apex, the apical margin slightly sinuated: *anterior wings* pale fulvous, subhyaline, the apical margin broadly margined with brown; the costal area with black spots only on the margin at the base, afterwards also with several larger oblique ones; the median vein at the base, and the base of the dorsal margin, with deep black spots; and there are numerous small blackish dots towards the apex and on the disk; a large black blotch near the base below the radius, a smaller one at the postcostal furcation on the dorsal margin; before the middle a very large black blotch below the radius, more or less connected with a dorsal one and forming a somewhat interrupted fascia; beyond the middle a still larger black blotch extended to the costal margin and reaching more than half across the wing; a clouded blackish fascia formed of two connected spots just before the apex; costal vein black, the other veins and veinlets reddish testaceous, but black where they traverse the black markings: *posterior wings* white, pinkish towards the apex; a few black spots on the basal portion of the dorsal margin; a large black blotch near the base, opposite to a smaller one at the postcostal furcation on the dorsal margin; a broad black fascia before the middle much dilated on the dorsal margin; another broad black fascia beyond the middle, with a furcation more or less confluent with the first fascia, and an extension round the apical margin; a large black spot on the

costa just before the extreme apex; these black markings occupy more of the wing than does the white ground-colour; veins testaceous in the white portion, black in the black. *Legs* short and very stout, deep black. *Abdomen* reddish brown, more obscure in the apical half; the two basal segments show a trace of the black dorsal thoracic vitta; the basal segments with short white pubescence.

I have one female example of this grand insect, but without any indication of locality; it is possibly African.

*PALPARES IMMENSUS*, n. sp. Testaceous, albo hirsutus. Antennæ nigrae. Caput prothoraxque flava, vitta media nigra; palpi nigri. Mesothorax metathoraxque densissime albo hirsuti. Alæ anticæ elongatæ, angustæ, acutæ, hyalinæ, ad costam basinque nigro reticulatæ; maculis discalibus vittisque duabus, quarum una obliqua ante medium marginem dorsalem versus, altera in apice, nigro-fuliginosis, pallido reticulatis, striga elongata attenuata ante marginem dorsalem nigro-fuliginosa: posticæ anticis paulo breviores, hyalinæ; fasciis duabus, quarum una valde irregularis in dimidio basali, altera, interdum interrupta, pone medium, strigis duabus apicalibus strigique interrupta ante marginem dorsalem nigris. Pedes nigri; tarsorum articulo ultimo unguibusque brunneo-testaceis. Abdomen rufo-testaceum, apice nigro; ♂ appendicibus nigris, sursum incurvatis. (♂ ♀.) Long. corp. 2"-2" 6''; exp. alar. 5" 6''-6''.

*Hab.* "Damara Land" (*Andersson*). In collect. auct.

*Antennæ* about the length of the mesothorax, black. *Head* yellow, the vertex strongly inflated and somewhat reddish anteriorly; a deep median impressed longitudinal line; face bright yellow, with a shining black line on each side; palpi shining black, the articulation between the penultimate and terminal joints yellowish. A broad black median longitudinal line extends along the vertex, prothorax, and anterior portion of the mesothorax. - *Prothorax* very narrow, thrice as broad as long, yellow; divided into three transverse divisions by means of the impressed lines. *Meso- and metathorax* densely clothed with long white pubescence both above and beneath, yellowish; the metathorax with two conspicuous testaceous spots. *Anterior wings* very long, narrow, acute, hyaline; the costal margin very straight; pterostigma yellowish; costal space with numerous transverse black lines; the basal fourth of the wings strongly reticulated with black; on the disk are several blackish spots with pale reticulations, viz. one near the base, another before the middle, and two opposite ones beyond the middle; an oblique blackish streak near the middle of the dorsal margin and a straight one on the apex; a long blackish line extending from near the apex to beyond the middle of the dorsal margin, placed very near the margin, but leaving a hyaline space between it and the extreme edge; a number of small black spots between the pterostigma and the apex; costal vein, sub-

costa, and radius black, the rest of the veins and veinlets yellowish. *Posterior wings* similar in form to the anterior, and scarcely perceptibly shorter, hyaline; costal transverse black spots less in number; the basal half of the wing with a very irregular broad angulated black fascia with a long irregular prolongation almost reaching the base; beyond this is another fascia composed of two large more or less united black spots, whereof the lower one is very much the larger; two lines and some black points in the apex; a line before the dorsal margin, which is not complete but more or less broken up into spots; colouring of the veins as in the anterior wings; the knobbed appendage at the base testaceous. *Legs* black, with strong black spines and white hairs intermingled; tarsi brown; tibial spurs as long as the two first tarsal joints, slightly curved; claws nearly as long as the last tarsal joint. *Abdomen* not nearly so long as the wings, stout in the female, reddish testaceous, the apex and segmental divisions blackish, clothed with fine white pubescence: in the male the appendices are short, black, nearly cylindrical, the tips flattened, curved strongly downwards, with the tips directed upwards, forming almost a semicircle.

I possess three examples (1 ♂, 2 ♀) of this enormous insect from Damara Land.

*PALPARES SPARSUS*, n. sp. Flavus. Antennæ nigrae. Caput flavum, nigro univittatum. Thorax dense albido hirsutus, flavus, nigro-trivittatus; pectus flavo nigroque ornatum. Alæ ad apicem dilatatae, subobtusae, albido-hyalinae, punctis parvis vix regulariter nigro conspersae; margine costali punctis majoribus; pterostigmate et (♂) spatio subcostali pallide flavis; venis venisque flavis: posticae (♀) macula tribus reticulatis nigris. Pedes flavi; tarsi nigris. Abdomen flavum, utrinque et infra late nigrum; ♂ appendicibus cylindricis regulariter curvatis, flavis. ♂ ♀. Long. corp. 2'; exp. alar. 3' 11"–4' 7".

*Hab.* "Damara Land" et Zambesi. In collect. auct.

Pale yellow. *Antennae* black, nearly the length of the thorax. Head pale yellow; the vertex above with a median broad black line expanding about the base of the antennae; face yellow, with a quadrate black spot; *palpi* blackish, yellow at the articulations; *eyes* leaden black. *Prothorax* very short, much broader than long, with a deep transverse channel in the middle, the margins on either side of which are strongly elevated. The whole of the *pro-, meso-, and metathorax* is clothed above and beneath with fine long whitish pubescence; pale yellow, above with three broad longitudinal black vittae; beneath black, with large yellow spots. *Wings* much dilated beyond the middle, subobtusae; pale whitish, hyaline, the broad apical marginal region more opaque; pterostigma, the attachments at the base, and the subcostal area pale yellow; costal margin with rather large subquadrate black spots; the whole of the rest of the wing pretty regularly sprinkled with small black spots, which are less numerous on the posterior wings; veins

and veinlets pale yellow, excepting those placed in the black spots, where they are blackish. *Legs* orange yellow, the tips of the tibiæ and the whole of the tarsi shining black; spines black; spurs and claws pitchy. *Abdomen* pale yellow, with whitish hairs at the base, and afterwards with minute black bristles; a broad band on each side and the under surface black; terminal segment wholly yellow; appendices cylindrical, regularly curved, yellow.

The above description applies to a male taken by Mr. T. Baines on the Daka River in the Zambesi valley in March.

The female from Damara Land differs in wanting the yellow tint on the subcostal area; the small dots on the posterior wings are less numerous, and in these wings are three rather large blackish reticulated spots, one on the disk about the middle, and two others placed obliquely a little within the pterostigma, the larger of which is near the costal margin; the reticulation is paler, almost colourless (excepting in the black markings). The tibiæ have a vestige of a black mark externally.

As I have seen but one example from each locality, respectively male and female, I am unable to say if the small differences above noted are actually sexual or dependent upon local influences.

**PALPARES DAMARENSIS**, n. sp. Fuscus, flavo varius. Antennæ nigræ.

Caput valde convexum, nigro-fuscum; labro flavo. Prothorax fuscus, antice flavo marginatus (interdum flavus, fusco signatus). Mesothorax metathoraxque fusci, obscure flavo varii. Alæ antice elongatæ, obtusæ, pallide flavo-albidæ; maculis costalibus (ad basin numerosis) et ad marginem dorsalem fasciisque tribus interruptis plus minus nigris aut fusco-nigris; pterostigmate venis venulisque flavis: posticæ anticis fere æquales, pallide flavo-albidæ; macula magna basin versus, fasciis duabus vel interruptis vel postice furcatis maculisque marginalibus apicalibusque nigris. Pedes nigri. Abdomen testaceum, apicem versus obscurius. ♀. Long. corp. 1" 5''; exp. alar. 3" 2''.

*Hab.* "Damara Land" (*Andersson*). In collect. auct.

*Antennæ* about the length of the thorax, black, the club obtuse, but not abruptly capitate. *Head* blackish, with a few whitish hairs, the vertex very convex, with a median impressed longitudinal line; *clypeus* and *labrum* yellow; *palpi* black. *Eyes* castaneous. *Prothorax* very short, much widened posteriorly, and with the posterior angles strongly produced downwards; the margins all raised, the middle space somewhat flattened; dark fuscous, with a few white hairs, the anterior portion broadly yellow. In one example (more immature?) the whole prothorax is bright yellow, with blackish spots in the middle. *Mesothorax* blackish fuscous, with few whitish hairs; a large yellow spot occupies the posterior lobe, above which are other yellowish markings. *Metathorax* similarly coloured, with three yellowish spots.

The sides and under surface of the thorax are blackish, with yellow markings thickly clothed with white hairs. *Anterior wings* elongate, obtuse, pale yellowish white, with black markings; pterostigma yellow; a series of broad transverse costal spots, a large number of small spots on the basal fourth of the wing, and also along the apex and dorsal margin; three transverse fasciæ more or less divided into large spots, one at about a third from the base, another at two thirds, and the last following the pterostigma, the spaces between these fasciæ without dots, excepting on the margins; costal veins blackish, the rest of the veins and veinlets yellow, except where they traverse the black markings, with which they are there concolorous. *Posterior wings* similar in form to the anterior, scarcely shorter, coloured the same but with fewer small black spots, viz. several very indistinct transverse costal ones and some larger ones on the dorsal margin; on the disk at about one-quarter of the length from the base is a large isolated spot; at about the middle a broad angulated fascia, sometimes interrupted towards the dorsal margin, where it is forked; a similar, but straighter, fascia at a fourth of the length from the apex, and some apical spots forming a greatly interrupted third fascia; veins and veinlets coloured as in the anterior. *Legs* black, with black spines and white hairs; tibial spurs nearly as long as the first three tarsal joints, dark shining castaneous, slightly curved; claws similarly coloured, very long. *Abdomen* yellowish testaceous, more obscure towards the apex.

I possess two examples from Damara Land. I had at first referred this and the next species to *Tomateres*, to which in their comparatively small size and general form they bear much resemblance; but the antennæ, at any rate in *P. damarensis*, are not so short and abruptly capitate as in the species of that genus.

**PALPARES FLAVO-FASCIATUS**, n. sp. Fuscus. (Caput prothoraxque desunt.) Mesothorax metathoraxque fusco-nigri, cano hirsuti. Alæ anticæ elongatæ, subacutæ, subhyalinæ, densissime fusco-nigro reticulatæ; fasciis tribus completis obliquis maculisque numerosis, haud reticulatis, flavis: posticæ albæ; fasciis tribus latis fuscis, quarum duæ ad marginem dorsalem trifurcatæ. Pedes nigri. Abdomen attenuatum, fuscum; appendicibus divaricatis, curvatis, subclavatis, nigris (♂). Long. corp. (sine capite et appendicibus) 1" 11"; exp. alar. 3" 9".

*Hab.* "Damara Land" (*Andersson*). In collect. auct.

(Head and prothorax wanting in my example). *Meso- and metathorax* blackish, clothed with hoary hairs. *Anterior wings* subhyaline, densely reticulated with blackish, and with very numerous small yellow spots, costal margin black and yellow alternately; three bright yellow oblique transverse fasciæ without reticulation, viz. one, nearly equal in breadth throughout, at about a quarter of the length of the wing from the base, another, interrupted, at about a third from the apex, and another, complete, just before the apex; these fasciæ are all very broadly

margined with black on each side, the space between the last and the extreme apex black spotted with yellow; the dorsal margin is occupied with black and yellow alternate spaces; neuration for the most part blackish, but yellow in the yellow fasciæ and spots. *Posterior wings* similar in form to the anterior, very slightly narrower and shorter; white, more transparent in the basal fourth; three broad and irregular transverse black fasciæ, one rather before the middle, trifurcate on the dorsal margin, another following this and somewhat similar in form, and the third occupying the apex and enclosing a large yellow spot; some of the costal veinlets, and the point where the postcosta joins the dorsal margin, blackish. *Legs* shining black, with black spines and a few whitish hairs; tibial spurs as long as the first three tarsal joints, and with the claws dark shining brown. *Abdomen* very slender, fuscous, slightly pubescent; appendices widely diverging, curved, black, somewhat clavate at the tips.

I possess one male example of this beautiful species from Damara Land. It appears to be somewhat allied to *Palpares spectrum*, Rambur. The unfortunate absence of the head precludes a correct estimation of its generic position.

† Genus CRAMBOMORPHUS, n. g.

I propose this name for the *Palpares hæmatogaster* of Gerstaecker, which may be thus generically diagnosed.

Antennæ longæ clavatæ. Palpi labiales robusti, articulo ultimo longe clavato, valde incrassato. Prothorax brevis, transversus. Caput thoraxque valde hirsuta. Alæ anticæ posticæque fere æquales, coriaceæ, elongatæ, perangustæ, subfalcatæ; marginibus apicali dorsalique late sinuatis; area costali ad basin paulo dilatata, biareolata, postquam uniareolata; posticæ postcosta furcata, anastomosi marginali ramo recurvo. Pedes breves, robusti, calcaribus paulo curvatis.

This genus should probably come next to *Stenares*.

I have little doubt that *C. hæmatogaster* is the same as *Myrmeleon sinuatum*, of Olivier, 'Encyc. Méthod.' viii. p. 121, 4. I possess one example from Damara Land.

† Genus ECHTHROMYRMEX, n. g.

Antennæ graciles, clava acuminata. Alæ maculatæ, ad basin augustatæ, ad apicem valde dilatatæ, rotundatæ; area costali uniareolata; subcosta et radio ad apicem fortiter curvatis; venulis transversalibus pernumerosis; areolis fere quadratis: *posticæ postcosta simplici*. Pedes breves, valde spinosi, calcaribus tarsorum articulo 1° æqualibus; plantula magna, penicillata.

This genus in the structure of the veins of the posterior wings

nearly approaches the South American *Dimares*, Hagen, and is altogether aberrant in the Asiatic fauna. The palpi are broken off in the single example I have seen.

† *ECHTHROMYRMEX PLATYPTERUS*, n. s. Pallide flavescens. Antennæ rufo-ochraceæ, indistincte pallido annulatæ. Caput pallide flavum; fronte circum antennas fusco, clypeo flavo; occipite antice vitta transversa angustata fusca, postice fusco signato. Prothorax elongatus, lateribus fere parallelis; flavus, fusco signatus. Alæ hyalinæ: anticæ dimidio apicali flavo tincto; nebula magna pone medium maculisque in area subcostali, inter venas 4<sup>m</sup> et 5<sup>m</sup>, pone pterostigma, et ad marginem apicalem dorsalemque fuscis; venis longitudinalibus fuscis, flavo striatis: posticæ hyalinæ; fascia lata apicali fusca, albo maculata, intus albo marginata. Pedes pallide flavi, nigro spinosi. Abdomen flavidum, fusco annulatum; segmento ultimo spinis brevibus numerosis nigris instructo. (♀?) Long. corp. 1" 5<sup>m</sup>; exp. alar. 3" 11<sup>m</sup>.

*Hab.* Bagdad. In Mus. Brit.

*Antennæ* reddish ochreous, with very indistinct pale rings. *Head* pale yellow; occiput with a narrow transverse fuscous line in front, and fuscous markings behind; face pale fuscous about the base of the antennæ; clypeus yellow, with two impressed fuscous dots; mandibles tipped with black (palpi broken off). *Prothorax* longer than broad, narrower than the head, the sides nearly parallel, with a few long hairs, the anterior angles rounded; yellow, with two fuscous connected lines in the middle, and fuscous at the sides. *Meso- and metathorax* yellow, spotted with fuscous. *Wings* hyaline: *anterior wings* slightly excised below the extreme apex; the apical half tinged with yellowish; a very broad indistinct fuscous blotch beyond the middle, reaching half-way to the dorsal margin; the subcostal area and the space between the 4th and 5th principal veins spotted with fuscous; a fuscous blotch on the costa beyond the pterostigma, and another in the apex; the apical margin and apical portion of the dorsal with regular rounded fuscous spots; besides these markings there are numerous minute fuscous dots; pterostigma yellowish; veins and veinlets fuscous, the principal longitudinal veins streaked with whitish yellow, and many of the transverse veinlets wholly whitish yellow; the row of minute gradate veinlets bordering the apical marginal region conspicuously white: *posterior wings* with a very broad fuscous fascia occupying the apical half, broadly margined with milky white internally, and with several white spaces, viz. a large apical spot in which are two or three fuscous dots on the margin, a small spot at the pterostigmatical region, a larger spot on the dorsal margin towards the basal side of the fascia, and one or two smaller ones in the middle on this margin; basal veins and veinlets for the most part fuscous, the longitudinal veins with whitish streaks; the row of minute gradate veinlets bordering the apical marginal region very conspicuously white from being